THE

GARDENS' BULLETIN

SINGAPORE

VOL. XV 20th November, 1956

Croton hirtus an Alien New to Malaya

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I FIRST FOUND *Croton hirtus*, an alien of Tropical America, in Johore on 20th August, 1954, growing by the roadside (17½ mile Johore-Kota Tinggi Road) among grass but not in any quantity. On 21st November, 1954, I again found it, this time in abundance by the Kelantan River near Kota Bahru in sweet potato patches on the sandy river bank. The specimens were sent to Kew and identified by Mr. Lewis L. Forman.

In April 1955, I received specimens of *Croton hirtus* from Selangor, sent by Mr. P. R. Wycherley of the Rubber Research Institute of Malaya for identification. He informs me that it was first collected by Dr. E. D. C. Baptist on 7th July, 1954 at Bukit Rajah Estate, Klang. That specimen is retained by the Rubber Research Institute in their herbarium but subsequent material collected by Wycherley from Bukit Rajah Estate on 22nd April is now preserved in Herb. Singapore. Wycherley states that *Croton hirtus* is frequent throughout many acres here and appears to be spreading as its seeds freely and regenerates in bare areas under rubber on the coastal flats. In fact sodium arsenite has been used to spray it and other vegetation under rubber with effect. He again found it on Midlands Estate near Klang. The material in Herb. Singapore from Sungei Buloh was collected on 10th March, 1955 by Mr. V. K. Bhaskaran Nair while making a survey of vegetation at the Rubber Research Institute Experiment Station. Here it was fairly frequent in sandy soil in association with *Tricholaena rosea*, *Mimosa pudica*, *Centrosema pubescens*, *Passiflora foetida*, *Cyperus compressus* and *Borreria latifolia*.

Croton hirtus occurs in Java and has been there for many years. There is evidence that it was in Malaya much earlier than the above records indicate. There is one sheet in Herb. Singapore, stamped 30th April, 1936. The label has no data except *Croton sp*. and the printed heading "Herbarium Rubber Research Institute of Malaya".

As *Croton hirtus* is likely to spread and to appear in the other states of Malaya, it would be interesting to know of any further distribution. Since the work in which the original description appeared is available to very few botanists in the region and since none of the Malayan floras mentions it, a description and drawing made from living plants are here appended.

Croton hirtus L'Héritier, Stirpes Nov. 1 (1875) 17 t. 9.

Synonym: C. glandulosus L. var. *hirtus* M.-Arg. in DC. Prodr. 15, 2 (1866) 684.

Erect herb, annual or short-lived, 5–30 cm. high. *Stems* terete, green or often brownish-yellow, sparsely covered with stellate, hispid, 1–2 mm. long hairs. *Leaves* dull and medium green above, paler green beneath, deltoid, ovate-deltoid or slightly rhomboid,

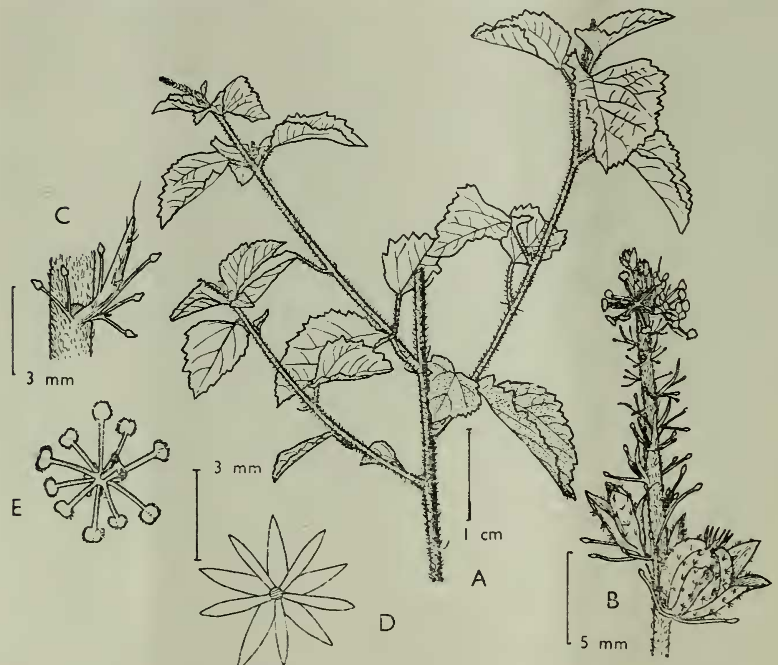

Fig. 1. *Croton hirtus* L'Herit.
A, Upper portion of plant with flowers. B, Inflorescence with male and female flowers. C, Bract and prophylls of male flower. D, Male perianth, inside view, stamens removed. E, Stamens and glands.

pubescent above and below with stellate, hispid hairs 0·5 mm. long, margins doubly crenate-serrate; nerves 5 pairs; length 2·5–6 cm.; breadth 2–5·5 cm.; petiole 1·5–2 cm. long with a pair of filiform, 5 mm. long stipules at the base. *Infloreseene* spike-like, hispid-stellate hairy, the male flowers at the top and female at the base. *Male flowers* 4–5 mm. in diam. in the axil of a trifid, 1–2 mm. long bracteole and two lateral stipular prophylls, the median axis of the bracteole filiform, green, slightly longer than the 2 side branches which are modified as glands, their stalks terete, greenish-white, their glandular heads ampulliform, greenish-yellow; the prophylls 1 mm. long or less, their median axes rudimentary, their two lateral axes similar to those of the bracteole; perianth of 5 outer greenish sepals with a minute gland at the base of each inside, and 5 inner, white, membranous petals; stamens 11, 5 outer, 5 inner and 1 central, 1–2 mm. long; filaments and anthers white. *Female flowers* each on a 1 mm. long stalk, surrounded by 5, unequal, green, foliar, linear-spathulate, laciniate, acute, 4–5 mm. long perianth segments; ovary green, covered with stellate-hispid hairs, subglobose, 5–6 mm. in diam.; style 1–1·5 mm. long, branched at the base into 3 linear segments, the segments again each divided close to the base into 2 linear, brick-red stigmas. *Seeds* 2 mm. in diam., greyish-brown, with a dull, puncticulate surface. **Fig. 1.**

KELANTAN: Kampong Pasir Pekan, Kota Bahru, *Sinclair S.F.N. 40515* (SING, K, E, L, BZF).

SELANGOR: Rubber Research Institute Experiment Station, Sungei Buloh, *Bhaskaran Nair, 10th March, 1955* (SING); Bukit Rajah Estate, Klang, *Wycherley, 22nd April, 1955* (SING).

JOHORE: 17½ mile Johore-Kota Tinggi Road, *Sinclair S.F.N. 40349* (SING, K, L).